the RARS Exciter

Raleigh Amateur Radio Society

RARS

Worldwide Friendship

July 2000 Number 357

Field Day? Yes - SWL Style!

see page 7

WØUCE Resigns as RARS President

Wake County EC Recommendation Made

Public Service: Hams Help CCFA Walk

July RARS Meeting CANCELLED!!
Next RARS Meeting: August 1st

The Exciter

The ***Exciter*** is the monthly newsletter of the Raleigh Amateur Radio Society. It is available in both printed and electronic form. The printed version is mailed to members just before each club meeting. The electronic form, in Adobe Acrobat PDF format, is e-mailed about a week earlier.

We solicit both articles and advertising. The deadline for submissions is the 15th of the prior month. Contact the Editor.

The views contained in the Exciter are those of the individual authors, and are not necessarily the views of the Editor, or the Raleigh Amateur Radio Society.

The Raleigh Amateur Radio Society

The Raleigh Amateur Radio Society, Inc. (RARS) was founded in 1969 and continues to serve and support the Amateur Radio community in the greater Triangle area. In 1999, we incorporated a new RARS, and obtained 501(c)(3) Non-Profit tax status.

The objectives of the club are to promote worldwide friendship through Amateur Radio; to be of public service by providing radio communications in times of disaster, emergency, or civic need; to educate members in radio technique; and to provide training classes to assist in obtaining Amateur Radio licenses.

Anyone interested in Amateur Radio is eligible to apply for membership. Dues for regular licensed amateurs are $18.00 per year (from July 1 through June 30). Additional immediate family members pay $5.00 each per year. Dues for licensed amateurs older than 59 or younger than 16 are $12.00 per year. Dues for non-licensed Associate members are $9.00 per year.

Applications for membership may be obtained from the treasurer, or the RARS web site (www.rars.org).

Officers

President	**Jack Ritter WØUCE** **846-1848** **GIG38@aol.com**
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SPECIAL SERVICE CLUB

ARRL

Info

Repeaters:

145.13
146.64
224.64
444.525 (88.5 PL)
444.95 (88.5 PL)

Web Site:

http://www.rars.org

President's Corner

Jack Ritter WØUCE

Resignation, with regret...

With sincere regret, I hereby submit my resignation as RARS President, effective July 1, 2000. Our VP Tim KF4RTX has agreed to take the reins until the RARS Board schedules a Special Election.

So you will know what this is all about, in May one of my major clients extended a business offer I simply cannot refuse. I had to make a business decision in the best interest of my family and career and I have done so. Unfortunately I will be required to spend extensive time in Asia. Therefore, I cannot in good conscience attempt to act as part time RARS President as it has been my intention to serve as RARS in the best interest of the membership.

I will also miss one of my favorite operating events - Field Day, as I expect to leave for Japan on or about June 15. As it stands, I will most likely be required to reside in Hong Kong for the next 12 to 18 months.

I trust the board and membership will understand my concerns in making this decision as I greatly appreciate the trust and confidence that has been extended by electing me RARS President.

Thanks for your understanding and best 73,

Jack WØUCE

Jack - RARS thanks you for offering to take on the office of President, and for recognizing that you would not be able to give the club your best when your business schedule changed. We wish you luck as you hop the globe. Keep looking for unusual and interesting Amateur Radio stories to share in the Exciter. And when you travels are finally done, I'm sure RARS will benefit from your experience and leadership once again. 73,

Gary KN4AQ

E-mail Bill at: bcole@jmpstart.com

KG4CXY Steps In As RARS Public Service Director

Bill Cole KG4CXY has volunteered for the position of RARS Public Service Director. Bill has been the club Net Manager for the past year, and will continue in that position (harkening back to Doug Sweet AD4UL, who handled both jobs several years ago). The club will need to confirm Bill's new job by vote at the August meeting. Until then he will operate under an appointment from the Board.

Bill jumped into the job right away, with a presentation at the June club meeting. As you can see from the slide behind Bill in the picture, he's expecting assistance in coordinating public service events - he's not planning on running them all himself! That means an individual coordinator for each event. If you're interested in helping, let Bill know.

Coming up are some of the biggest events we have each year:

The MS-150 - a two-day bike tour on September 16 and 17. Gary KN4AQ has already volunteered to coordinate that event (see the article on page 7 of this ***Exciter***). See pictures of last year's event in the RARS Gallery on the web site (www.rars.org).

State Fair Red Cross Communications - October 13-22. We provide two radio operators for three shifts all 10 days of the fair. This one's in the gallery, too. We're looking for a coordinator for this operation.

American Diabetes Association Walk - October 14. Spend a nice day in Umstead Park, playing radio. We're looking for a coordinator for this event, too.

Raleigh Marathon - a new event, and Raleigh's first Marathon, December 3rd. They've asked for ham radio help. And we need a volunteer to coordinate this event as well. Interested? Contact Bill KG4CXY. ■

Public Service Black Eye?

For the second year in a row, hams let down a group that used to count on our help. The **North Carolina Special Olympics** held their Summer Games in June without us. David Marable KD4WQU tried to recruit hams to help out. A few said they'd help, but not nearly enough to do the job. David says he knows the need wasn't publicized enough among hams. With Bill joining the Public Service team, we hope that won't happen again. Of course, that's really up to you.

Where Are The Field Day Pictures?

We'll have to wait till next month! Field Day falls on the last weekend of the month - a black hole for ***Exciter*** publication. This issue went to the printer on June 21st, just before Field Day. But it wasn't mailed until Field Day was over. (About 40 club members subscribe to the electronic edition, and received the ***Exciter*** before Field Day.)

We should have plenty of pictures next month. Hope you had a good time!

SKYWARN Starts Weekly Net - 9:30 Tuesdays on 88

Central Carolina SKYWARN has begun a weekly information net on the 146.88 repeater, Tuesday nights at 9:30. Each net will be hosted by one of the SKYWARN Net Control stations, and will present a weather or SKYWARN related topic to discuss, in addition to general SKYWARN questions and answers.

On the fourth Tuesday each month, the Raleigh 146.88 repeater will link to the Wilmington 146.82 and Trenton 145.21 machines using the PCRN link, and tie into a SKYWARN net that has been running in eastern NC for some time. The Columbia/Outer Banks repeater link system may also tie into the network, extending coverage to the entire eastern third of the state. ■

RARS Dinner:

4th Tuesday at Fat Daddies on Glenwood Ave. Info: 787-1111

Area Ham Leaders Recommend County EC Candidate

Four Appointed As SERT "Coordinators"

Gary Pearce KN4AQ

On Saturday, June 17th, a group of 17 Wake County amateur radio operators met at the State EOC to discuss a recommendation for County EC. Leaders from all area radio clubs and independent repeater associations were invited. Representatives were present from RARS, SKYWARN, Triangle East ARA, the Capital ARS, and the K4JDR Repeater Assn., as well as Area 7 DEC, Jim Lewis N4PE. No one was present from the Cary Amateur Radio Club, Piedmont Coastal Repeater Network, the NCSU Student ARS (StARS), or several repeaters.

The two known candidates for the EC position were introduced: **Bill Ward KD4ISF, and Ron Ford KG4FJA.** No additional candidates were recommended by the group. Bill and Ron discussed their qualifications. We emphasized that neither Bill nor Ron was "campaigning" for the position. Both wanted to see ARES work better in Wake County, and were committed to working in emergency communications.

Equipment at the State EOC is due for an upgrade. A new 2-meter FM transceiver, and a new dual-band FM transceiver have been ordered, as well as new antennas to go on the roof of the Administration Bldg.

Bill Ward KD4ISF has been a ham since 1992. His main interest in Amateur Radio is public service and emergency communications. He has taken extensive shifts at both the county and state EOCs during most activations in the past several years. His job permits him a fair amount of time flexibility, allowing him to supervise ARES activity when needed. His main liability would be lack of a leadership track record.

Ron Ford KG4FJA has been a ham only since last fall, having graduated from a RARS license class. However, as a Major in the Garner police department, he has extensive experience in all aspects of emergency management, including communications. He also has close contacts with Wake County Emergency Management.

Since becoming a ham, Ron has upgraded to General Class, and has become a regular Net Control station on the RARS nightly nets. He also stepped in at the last minute as Security Chairman at the RARS hamfest in April.

Ron's main liability is that, in disaster situations affecting Wake County, his first loyalty must be to the police department. He would not be able to directly supervise ARES operation. Ron recognizes this, and says he will rely on a strong corps of assistants to carry the ball in those situations. He sees the job of EC as one of recruiting, organizing and training, so others are ready to act without his leadership when the time comes. This situation would likely change in about two years, when he retires from the force. (He intends to remain in the area, operating a business he owns with his wife).

I asked the one politically sensitive question I could think of. Since Ron already has a relationship with Emergency Management, does he carry any political "baggage?" He said no, he has a good working relationship with them. He has participated in drafting plans for incident command situations. He notes that the County Emergency Management takes a support role, and does not "take over" and supervise the local police and other agencies during emergency situations.

Bill and Ron excused themselves, and the group discussed their qualifications. We felt that both were qualified, but that Ron Ford's management skills and background made him the more highly qualified candidate. We felt this offset both his status as a very new ham, and the fact that he would not be available during situations affecting Wake County for the next few years. We will be relying on Bill, and other amateurs to be appointed as assistant ECs, to keep ARES functioning when Ron is not available.

This group's consensus was to recommend that Ron Ford KG4FJA be appointed as the Wake County Emergency Coordinator. The recommendation has been forwarded to David Fleming KE4JHJ, our SEC, and copied to John Covington W4CC, our SM.

Now, the real work begins - recruiting, training, rebuilding the call-up list, identifying and appointing assistant ECs, and quickly getting Wake County ARES in readiness for this year's Hurricane Season, now upon us. We hope everyone will continue to help.

SERT "COORDINATORS" APPOINTED

To ensure that the State EOC Amateur Radio Station will be staffed and ready this Hurricane Season, four **Amateur Radio Coordinators** to the State Emergency Response Team (SERT) were appointed by NC Emergency Management Amateur Radio liaison Tom Loree NS2I. The coordinators are SKYWARN EC Thomas Babb KF4JKQ, Ron Ford KG4FJA, Bill Ward KD4ISF, and Gary Pearce KN4AQ.

SERT Amateur Radio Coordinators Gary KN4AQ, Ron KG4FJA, Thomas KF4JKQ and Bill KD4ISF, at the State EOC Amateur Station

This team was charged with drawing up training and operating procedures, recruiting and supervising operators, and maintaining the State EOC Amateur Radio Station. The four immediately began planning the reinvigoration of Wake County ARES to implement their mandate. ■

Tom Loree NS2I, a communications operator at the State EOC, has a Kenwood tri-bander at the operating position. Tom acts as liaison to Amateur Radio for the EOC.

RARS Team Presents Ham Radio To Millbrook Elementary Classes

Evan Price, KG4HGC and his friend Matt Fergen helped "Boatanchor Bob" Keys NA4G and Tim Buehlmann W4TIM put on a ham radio demonstration at Science Day at Millbrook Elementary School in June. They showed off equipment ranging from the early days of spark to modern VHF-FM, and made contacts for each class on the 146.64 repeater, with the help of hams monitoring the machine. Some of the students in the photo below appear to be actually paying attention! Future hams, no doubt.

Captain Truth - Tell Us More...

ARRL Web Extra

NEWTON, NC [UPDATE]: The FCC wrote Extra licensee John M. Yount, K4QIJ, on June 1, 2000, seeking additional information in its ongoing investigation into malicious interference that the FCC alleges emanated from Yount's home. Yount has told the FCC that his property contains seven homes and storage areas and eleven vehicles "ranging from a Rolls Royce to a Chevy Blazer and tractor." FCC Special Counsel for Amateur Radio Enforcement Riley Hollingsworth asked that Yount provide specific information on the homes, storage facilities, and motor vehicles within 20 days.

On March 29, the FCC wrote Yount citing FCC and other close-in monitoring evidence indicating that Yount's station was the source of "malicious interference and jamming" on 20 and 75 meters. The FCC said part of its monitoring evidence resulted from work done by the FCC's High-Frequency Direction Finding facility in Columbia, Maryland. The Commission said its evidence indicated that Yount had made transmissions identified by the call sign "K4OKA" (assigned to another amateur) as well as "Captain Truth" and possibly other names. The FCC said its evidence in the "Captain Truth" case indicated that the malicious interference and jamming occurred at various times since March 1999--up to as recently as March 24 of this year. Hollingsworth again invited Yount to contact him to discuss the matter further. ■

KD4ACW Going "Postal" Over Exciter Mailing

OK, we're trying this again.

Lured by the twin sirens of lower cost and higher weight limits, we here at ***Exciter*** Headquarters have tried "bulk mail" several times in years past. This 12 page Exciter would cost 55¢ to mail using First Class, since it's over one ounce. But instead, we're paying less than 15¢. We're using our new non-profit status, and the permit we picked up for sending the RARSfest flyers. That permit saved us about $1000 on the flyers, and it's good for a year, so the ***Exciter*** savings are gravy.

Like I said, we've done this before, only to be rebuffed every time by slow delivery.... sometimes no delivery. So what's the difference this time?

Well, maybe nothing. We'll see. But recently, Cyndi KD4ACW, Jeff AC4ZO and John N4YRD attended Post Office School and learned the in's and out's of bulk mail. One thing they learned is that it's not called "bulk mail" anymore. It's now **Standard Mail**. And it's very automated. And if we get all our ducks in the right row, we can expect near-first-class delivery times (two to three days in the local zip codes).

We had *some* of our ducks lined up in May and June, but delivery was sporadic. Some members received the Exciter promptly, and some waited more than a week.

Our goal is to have you receive the ***Exciter*** *before* the meeting, so we need to do better. Once we've maxed out our postal technique, we may have to advance the production schedule to allow a few more days for delivery.

She sorts. Cyndi KD4ACW sorts the May Exciters into Zip-Code bundles, per Post Office instructions. It's a bit more work on our end, but it saves the club over $1000/year, and allows fatter Exciters!

By the way, I've heard from several of you who noticed you had the **wrong callsign** on your May mailing label. Sharp eyes! A glitch in the printing program shuffled some callsigns. We checked with the FCC, and they say you should keep using your old call. ■

Repeater Hogs on 64?

Fred Decker N4IXL
RARS FM/Repeater Chairman

The 64 machine has been back up in it's new home for over a year now and with it we have lost some users, gained some new ones, and found old users who have returned. As a club of over 280 members, there are a lot of people who want to share club resources such as our main repeater, the 146.640 machine. Sometimes, there are conflicts as people arrive who a large percentage of us find, let's say... "Irritating", or who despite being decent folks, seem to dominate one repeater.

Are you a repeater hog? Well, check your operating habits. There are 3 or 4 people at least who would qualify right now. Do you talk during the morning drive time, then try and check in if you are back in the car midmorning, then are you sure to key up at lunch, then in the afternoon, then at drive time sometimes for almost 2 hours, then hold a long conversation before the 8 o'clock net, then check into the net, then catch up with people after the net often tying up the repeater for much of the day up until 9 or 10 pm, and finally spend a good share of the weekend on the repeater? Do you feel the need to join a conversation even if a group of friends obviously just want their chance to chat amongst themselves?

Why is this a problem? The problem arises because there are a lot of people who wait until they have reached the boiling point before they say or do something. Sometimes this is over the air, and sometimes it is just burning up the phone lines of those of us who operate the repeaters. Many people, being kind hearted, choose to suffer in silence. They say nothing, patiently waiting for the machine to be quiet in order to use it, or just decide to give up and use another repeater. In any case, this can cause ill will amongst the club members.

It is possible that this is costing the club membership. Not only are current members leaving, but new members, hearing the same voices on the repeater almost any time of day, day after day, assume that there is no room for them. They probably think the call sign for the machine is that of the repeater hog rather than W4DW! Before you say, "Well, I leave space between my transmissions!", think about human nature. Do *you* feel comfortable breaking into a conversation to make a call, or do you wait until the repeater is quiet? Maybe this is an unrealistic question, because many repeater hogs don't care, but put yourself in another HAM's shoes. For every person that breaks into a repeater hog conversation to finally make their own call, you can bet there are 10 who just didn't get to use the machine, or felt forced to go somewhere else.

There is another issue, and that is that many people form their opinion of the club, or make a decision of which club to support, based on what they hear on the club repeater. Are people getting a fair representation of the Raleigh Amateur Radio Society from 3 or 4 people? Does what these people say over and over, day after day, represent the greater membership and what the club stands for?

For those who have been afraid to use the repeaters, especially at drive time, please *assert yourself* and join in the conversation, or make your call and take your fair turn. We need as many of our members as want to talk on the repeaters to use them. For others...

Here are 10 suggestions of things to do if you suspect that you might be a repeater hog:

1. Get a life! I for one am surprised that there are any human beings who can spend so much time on the radio when they supposedly have a job and/or a family, responsibilities, and other interests. Spend some time on something other than talking on the radio. Make some money, talk to your kids, take your wife out to a movie, mow the grass.

2. Leave pauses between keyups. It's not a contest, you don't win anything by keying up before the next person, and what you say isn't so important it can't wait a half second. Train yourself to wait until the repeater carrier drops, or say the word "Kannapolis" after the person you are speaking with unkeys. You can substitute your own 4-syllable word if you like, I just like the sound of "Kannapolis".

3. Spread yourself around. The 64 machine isn't the only repeater in the area, nor is it the only club machine. Introduce yourself around if the radio is your only social outlet, try simplex too while you are at it. Since you obviously love to hear yourself talk, and have so much to say, make sure you share it with the widest possible audience.

4. Limit Yourself. Pay attention to how much time you are using the repeater and set limits. If you talk in the morning, make a pact with yourself not to talk in the afternoon. Or set time limits, such as a maximum of 15 minutes, then excuse yourself and open the repeater to other users. You could even give it a rest for entire days - for example, tell yourself you are only going to key up on odd days.

5. Be conscious of your audience. Realize that there may be dozens of people hearing your every word, some of whom would very much like to use *their* repeater. Realize that many of these people might not want to hear some of your more controversial opinions, and that they might even be perceived as obnoxious, offensive, and inflammatory. Think twice before you push the PTT.

6. Take Breaks. Everybody, even repeater hogs, have to use the bathroom. Take a break once in a while. Just turn off the radio so you aren't tempted to start yet another conversation when you hear something interesting and go read the paper in the tiled "study". Make a PBJ, watch the news, or go outside and get some fresh air. Just to get you caught up in case you missed it, it's summer. There is a big world outside the shack, don't be afraid to venture out into it.

7. Try HF. If you are into LOOOOONG ragchews, this is probably where you belong anyway. There are a LOT more frequencies to choose from, and there also seems to be no shortage of political diatribe and mindless blathering where you can discover a HAM after your own heart. With the new restructuring, there should be a lot more people who can qualify for the HF frequencies and talk in large roundtable discussions or one on one. You can talk to someone 24 hours a day and on HF you get to talk all over the world!

8. Let your battery be your guide. If you are on an HT and your battery dies... take the hint that you have been talking too long. Use your battery as a time limiting device. Try to use up only one or two batteries a day. If you sit in your driveway after you get home and run down your car battery so it won't start the next day, I am afraid you are too far gone and there is no hope for you.

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SWL/Scanner Report - SWL Field Day at Jordan Lake

Kelly Mills AE4FG

The RARS (aka Tarheel) SWL/Scanner group took a cue from ham radio's Field Day and set up their own outdoor listening event at Jordan Lake on Saturday, May 20.

Looking for a quiet RF environment away from urban noise and static, the group set up dipoles, long-wires and beverage antennas, connected them to a wide variety of receivers, and tuned away into the evening, until thunder-storms chased them from the site. Receiving conditions were good, once florescent lights in a nearby trailer were turned off.

Tom McKee and Wayne Blackwell tune with modern equipment...

The June meeting of the Scanner/SWL SIG was held on the 19th at the El Rodeo restaurant on Pleasant Valley Road in Raleigh. Fifteen people attended.

Mike Guzo, President of the Wake Canine Search and Rescue team, gave an overview of his organi-zation, and discussed some of the operations that his team has been involved in. This year, they have been on 36 searches to date, including the earth-quakes in Turkey and some searches that have made the nightly news here in North Carolina.

... while Earl Richardson and Bob Zeher check out the antiques

***ON THE COVER:** Bob Zeher, Bruce Sherman and Charles Broyles bend over the hardware, making power and antenna connections as the listening event gets started.*

The group is all volunteers, and they are often issued radios from the agencies they are working with during searches. Mike hopes that the Search and Rescue team will get their amateur radio licenses, so we may hear them on the VHF and UHF ham bands in the future. To learn more about search and rescue, check out www.nasar.org.

The July SWL/Scanner SIG meeting will be held on the 17th (third Monday). The topic of this meeting will be on monitoring resources. So, bring your favorite scanner and shortwave materials to share with the group. Join us at 6:30 for a meal at El Rodeo. The meeting will begin at 7:30.

A tour of the NC Highway Patrol dispatch center is being planned for July 24th at 6:00 PM, and tentative plans for a tour of the **NC DOT Highway Camera Center** is planned for August 28th. Be sure to attend the July 17th meeting for more details.

The Scanner/SWL net is now being held each Monday night at 9:00 on the 146.64 repeater. Be sure to stop by and let us know what you have been monitoring.

For more information, e-mail Bob Zeher

ke4jvy@juno.com

or Kelly Mills

ae4fg@hotmail.com,

or call Bob at 844-9757.

REPEATER HOG

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9. Listen to music. There is another radio in your car. Have you thought of turning it on once in a while and turning the one with a mic attached to it off? It is very relaxing, and they even have call in shows where they actually like to hear people complain.

10. Buy a cell phone. The autopatch used to be really cool, now it is just an added convenience when there is an obvious and much better way to communicate with the general public. Sometimes it may be better to have private conversations rather than sharing your personal business with everyone who is listening, and it certainly makes more sense for all of you who love to report every stranded vehicle and fender bender to use a cell phone. Why interrupt conversation on the repeater for something that frankly, with every one else owning a cell phone if you don't, has already been reported 23 times by the time you see it anyway?

Like a very famous group says, the first step is acknowledging you have a problem. Realize you are powerless against this force to keyup, and know you have help. Seek your higher power, regain your inner strength, self-awareness and self-control, and learn to share the limited resources we have in a way that is more fair for everyone. ■

MS-150 Bike Tour Volunteer Hams Wanted

Eastern North Carolina Chapter
National Multiple Sclerosis Society

We need lots of hams for the MS-150 Bike Tour, scheduled for the weekend of September 16-17. The MS-150 is one of the bigger public service events of the year, lasting two days and covering 150 miles. Hams provide logistics and safety communica-tions as around 800 cyclists ride from Clayton to the beach at Emerald Isle, with an overnight stop in Kinston. That's 75 miles each day, 150 miles total! We staff rest stops, man SAG Wagons, and shadow medical personnel and the event organizers.

Just some of the hams who helped with the 1999 MS-150. Ask them - they'll tell you it's great fun!

To volunteer, contact Gary KN4AQ, or stop by the MS-150 ham web site:
www.rars.org/ms-150 ■

Batteries In The Hamshack – Part 4

Jeff Wittich AC4ZO

NiCads

We've had a pretty good look at lead acid batteries, but many of us use nicad (nickel-cadmium) batteries in our HTs every day, so they deserve a mention.

The construction of a nicad is simple. They are composed of a positive electrode (anode) that looks like metal foil, a similar negative electrode (cathode), and 2 layers of a porous separator material containing electrolyte. The 4 layers are then rolled up, and stuffed in a metal can, with connections from the ends of the can to the electrodes. There are two distinct types, whose difference is mainly the thickness of the separator. For simplicity, I'll refer to these two types as "AA" because that's about the size that many of them are, and "SUB-C" cause that's what I've heard others call them. I mention these two types because their characteristics are so different.

First, the "AA" type. The design of these things has gone relatively unchanged for quite a few years now. Their average capacity is about 600 milliamp hours for the ones that are indeed AA size. In recent years, marketers, if not manufacturers, have come up with "creative" ways of measuring capacity, and batteries began showing up with capacities of 700, 800, and even 900 milliamp hours for the same batteries that have always been 600. Expect to get about 600 mAh from them, regardless of what the manufacturer says.

They are meant for service of low to moderate current demand, averaging less than 1 amp. They are best suited to applications where the discharge period is an hour or longer, such as an HT.

Charging of a nicad is best done with a constant current source, unlike the lead acid batteries discussed previously. Normally, "AA" cells should be charged at a C/10 rate. This means that for a 600 mAh cell, it should be charged at about 60 mA. 50 mA is close enough. The charge period at C/10 should be 10 hours plus 40 percent. 14 to 16 hours would be the correct charge time if the cell has been fully discharged. There are "quick chargers" available that will bring them up in about an hour, and there will be a certain capacity of battery pack that they are safest for, and anything else will be at risk of having it's life shortened by heat generation, which occurs in the case of overcharging. Problem is, without measuring the charge current, you can't tell exactly what the capacity of this ideal pack would be, so there will always be some uncertainty.

My advice is: If you frequently need to charge them in an hour, go ahead and get the fast charger and don't worry about it. Worst case will probably only reduce the battery life by about 1 year anyway. At the slower C/10 rate provided by wall chargers (wall warts), the batteries can be left on charge indefinitely without serious damage, except for the possible formation of dendrites, explained later.

Now, a look at SUB-C cells. These things come in 3 different flavors. They are designated SC, SCR, and SCE types. The original type was SC. As far as I can tell, their capacity is 1200 mAh even though some of them tout 1400 mAh capacity. They are capable of supplying very high current, on the order of 15 amps for several minutes. The newer SCR type has an even lower internal resistance allowing even higher current drain. The SCE type is the newest nicad design and these SUB-C cells actually do have a higher capacity. It is around 1700 mAh, but they cannot tolerate the same high current charge cycle that the SC and SCR can. The additional capacity is nice though.

SUB-C cells can be used in applications which require very high current. My first exposure to them was in model car racing, where seven 1200 mAh cells would be drained in a 4 minute race. That's an 18 amp discharge for 4 minutes. Remarkable but true. They generate considerable heat during such use, and need to be allowed to cool before recharging. When cool, the SC and SCR cells can be charged in 15 minutes with no damage, using a high current supply . Typically, about 7 amps for 15 minutes will do the job. When charging this quickly, the best way to tell when an SC or SCR cell is fully charged is to monitor the voltage on the pack. With the current held steady, the voltage will increase until the battery is fully charged, and then the voltage will begin decreasing and the battery starts generating heat, at which time it is at full capacity. The charging current must be removed immediately when this "peak" is observed to prevent excessive heat generation which can quickly destroy the cells. For ham radio purposes, we rarely need this performance. Actually, we hardly ever have a suitable application for SUB-C cells at all, but now you know about them.

Nicads' discharge curve is very "flat." This means that their voltage does not drop very much as they discharge. Then, when they are drained, the voltage drops off VERY quickly. Many of us see this (or hear it on the repeater) as peoples' HTs go dead without warning. It is this characteristic that makes it difficult to tell how much charge is in a nicad. There is a device, called an "expanded scale voltmeter" which is available for about $40 that is designed for measuring the slight voltage drop during discharge, but they are not widely used.

Another property of nicads worth mentioning is their shelf life, or lack of it. Unfortunately, you cannot expect the pack charged for last years' MS-150 to be ready to run for this years' Special Olympics. When left alone, they lose between 1 and 3 percent of their charge each day. Most will be discharged in 1 to 3 months. This doesn't seem to hurt them though. Just charge them up and go.

Nicads can be expected to last about 4 years, regardless of how many times they are cycled (charged and discharged). Even so, there are things that can go wrong with them that shortens their life, and some will last much longer. **Cell reversing** is a common failure. It happens because each cell in a pack has a slightly different capacity, and there will always be one cell which is drained before the others. When this happens, the output voltage of the pack reduces by 1.2 volts (the normal voltage of a nicad cell) but the pack continues to supply power. This continued power is forced through the empty cell causing it to "charge" in the wrong direction. When 1 or 2 more cells go dead, the radio quits working, alerting the operator that it is time to recharge. Each time this happens, the life of the cell which was first to run out is shortened. After a while, it goes open.

Shorting is another failure mode of nicads. With time, ***dendrites*** form on the positive electrode. They are nickel deposits with a crystalline lattice structure that is very sharp. These dendrites poke through the separator, and contact the opposing electrode, causing the cell to short. you may have heard of people "rejuvenating" bad nicad cells by touching their contacts onto a car battery for a second. The cell then works for a while longer. This will not work on an open cell, but works on shorted cells by

CONTINUED..... next page

BATTERIES *continued from previous page*

vaporizing the dendrite, removing the short. I do not recommend this dangerous practice, and even so, the dendrite quickly reforms in the some hole, and at best you will only get another month or two from the cell. Dendrites form more quickly in cells left on trickle chargers for extended periods. If you have a quick charger that reverts to trickle charging at the end of the higher current charge, remove the battery when the trickle indicator comes on.

A word about *memory.* This misunderstood non-problem causes more worry among users of nicads than any other problem. The idea is that if a cell is only partially discharged before recharging, then the cell will only hold the amount of charge which was previously used. The problem is severely overrated, and is almost nothing to worry about at all. In order for a cell to develop this memory problem to any measurable degree, it has to be *REPEATEDLY* discharged to the *SAME LEVEL* and then recharged. This would take careful planning and monitoring if you were trying to make it happen. At about 20 such cycles, the problem would be measurable. At 30 of 40 cycles, the problem would probable become noticeable. To restore it to full capacity, simply fully discharge and recharge it 2 or 3 times. For this reason, it is almost never necessary to let a battery run down until a radio stops working before recharging. The only time I ever see memory problems in nicads is in dust busters, where they are often used for 8 seconds or so, and then charged for another week before getting used for another 8 seconds.

That's about it for nicads, and this concludes the series on **Batteries in the Hamshack**. I hope you've enjoyed the articles. Questions and comments can be directed to me at ac4zo@arrl.net. 73 to all. ■

The Case of the Exploding Nicad

Gary Pearce KN4AQ

POP! It sounded just like a balloon popping, which was curious because there were no balloons nearby - just an old HT sitting on the desk listening to 64 while I was working on pictures for the RARS web site. Even stranger, I felt a little woosh of air blow past my hand. The HT was still working, but the battery died shortly after that.

The battery was old, from 1994, and I had some replacement cells for it, so I opened the covers and found what you see in the pictures. One cell was puffed up on both ends, and "exploded" on one end. Not at the vent, either. I've never seen a Nicad do that before. It was especially interesting because it wasn't charging at the time.

RARS Tech License Class Begins Monday, July 10

The new summer version of the RARS Tech License Class begins Monday, July 10th! We will then follow the usual schedule, holding class on Monday and Thursday evenings for 6 weeks. Classes are held at the Nortel Technical Education Center, just off Rt. 54 near I-40, west of the Fairgrounds.

Mike WA4BPJ teaches circuits and components during the RARS Class. The next class series begins July 10. More info on the web site: www.rars.org

Registration has been going well, but if you know someone who might be interested in getting a ham license, tune them in. We're hoping teens and younger kids will be able to attend. These students have trouble fitting ham classes in with their regular schoolwork during the school year.

Check the RARS web site for updated class info, or contact Gary KN4AQ at: kn4aq@arrl.net, or 380-9944.

SKYWARN Gets Day On WRAL Weather Page

Central Carolina SKYWARN got more than 15 minutes of fame - it spent a whole day basking in the glow of the WRAL-TV Weather Web Page as the feature story, in addition to being featured on the station's newscasts on Wednesday, May 31st.

SKYWARN EC Thomas Babb KF4JKQ was interviewed, and told the usual story: SKYWARN Spotters fill in the missing details that Doppler RADAR can't see - right on the ground.

SkyWarn Spotters Serve as Eyes & Ears for the National Weather Service

"There's still nothing like having someone on the ground saying the tornado is here and here's what it's doing," says WRAL Meteorologist Elizabeth Gardner.

You can still see the story by heading for the WRAL web site (www.wral.com) and searching for "SKYWARN". ■

KN4AQ... DXer?

Gary Pearce KN4AQ

I'll be upfront with this. The goal of this article is to encourage some of our club's HF operators to write some articles for the ***Exciter***. KN4AQ has some cred when it comes to helping you worm your way around repeaters. But working DX?

That said, I just snagged **Amir 4X6TT** in Tel Aviv, Israel, on 17 meters. I busted through a pretty good pileup, while running 100 watts and a dipole. I didn't work him on my first try, but it didn't take long.

So some of you guys are newly minted Generals (congrats!), many just shedding your "Temporary AG" badges. Hopefully by the time this is printed the VEC's and the FCC will have whittled down the backlog and gotten a ticket to everyone who upgraded in that mad dash last spring. Anyway, you're pretty new, and you're wondering if you're doing things right down on HF. Here's what I did.

I tuned around the 17 meter band. That's the first thing I did right. 12 and 17 meters have been ham bands for more than 10 years, but lots of the old timers forget them. People still call them "WARC" bands, as if there were something different about them. Well, *all* our bands are WARC bands! OK, it wasn't called "WARC" in all of ham history, but everything we have came from some international conference on frequency allocation. But my real point is that there's less competition on 12 and 17. Give 'em a try.

So I tuned around 17, and 4X6TT was calling CQ. I got excited. Much of my best DX comes when I stumble across the DX station while he's calling his first quick CQ, before a lot of other people hear him and all start calling him. Sometimes I'm the *only* one responding, and I'm rewarded with a ragchew, not just a quick wham-bam-*QSL via the buro* contact. After I talk to some of these guys for 10 or 20 minutes, they open the floodgates to everybody else. You want to work it this way? You gotta tune around a lot.

Well, that's not the way it worked with 4X6TT. He called a nice loooooong CQ. Got lots of attention. A bunch of people piled up to reply, including me. I gave my call once, slowly and clearly*: Kilo November Four Alpha Quebec*. He answered someone else.

On 17 meters, I couldn't hear everyone he replied to. The signals bounce pretty far, and the "skip zones" are big. I did hear a station in Wilmington work him. The Wilmington station's signal was pretty weak and "watery". I expect I was hearing him via backscatter. The other alternative was *long path* – all the way around the world. Not too likely. Anyway, I waited for clues about when to call next. I didn't want to step on someone Amir was talking to that I couldn't hear.

Each contact went fairly quickly, but he did ragchew a bit with some people he knew. When he was done with each contact, he would usually say "QRZ", letting me know when to call. *Kilo November Four Alpha Quebec*. I didn't try any of the tricks. I didn't wait until the pileup was exhausting itself and try "tail-ending" – calling at the very end of the pileup. Lots of other people were doing that, but I could hear that Amir was picking callsigns out early and responding before the pileup died down. Tailending isn't a bad technique, though, when you don't have the biggest signal on the band and the pileup is big.

There were the usual bunch of clueless hams who called Amir whenever he wasn't actually transmitting (and a few when he was). He ignored them. There was a numerically challenged guy in the 5th call district who called him after he announced he was listening for 6's and 7's only. Amir ignored him, too.

Then, on one of my calls like any of the others, with what sounded to me like just as much competition, Amir responded *"Alpha Quebec – the Alpha Quebec station? Good morning!"* It was about 1 AM in Israel.

I replied, giving my call in phonetics again to make sure he got my prefix. Since he was just making quick contacts, I didn't try to engage in a ragchew. I told him my name and location, and gave him a signal report. I did tell him I was running just 100 watts ("barefoot" – no amplifier) and using a dipole, and I said he was my first contact with Israel. Then I said 73.

He remarked that I had a very good signal for 100 watts and a dipole, and told me I could send my QSL card to his QSL manager in New York, or direct to him. His address was on the QRZ.com database. And he moved on to the next contact.

4X6TT's 11 Element Beam

Well, *he* did the hard work on my good signal report. He was running an 11 element beam at 125 feet. That *QSL manager* he mentioned is a guy in the US who gets logs from Amir and sends QSL cards out for him. US hams only have to pay domestic postage, not international. Lots of DX stations do that. But I'll probably "QSL via the buro." And that's another article.

OK, you big time HFers in RARS… you know I haven't even scratched the surface here. And you know we've got a lot of new Generals who can do things right… or do things wrong. I expect some stories by next month. My address is kn4aq@arrl.net. ■

28th Annual Cary Mid-Summer

SWAPFEST

Saturday, July 15, 2000 8:00AM

Cary Community Center

Chapel Hill Rd. at Academy St.

Talk-in 145.39- (82.5 Hz Tone)

Club Meeting Minutes

June, 2000

Minutes of the Regular June RARS Meeting - June 6, 2000

The meeting was called to order at 7:30p by Vice President Tim Nicholson, KF4RTX, who welcomed 66 members and 4 guests.

David, N4YTO gave the Treasurer's report. He said that our membership stands at 288. David then presented the proposed budget for the 2000-2001 year. With no discussion, a motion was made by KN4AQ, seconded by AC4ZO that we accept the budget as proposed. The motion was carried.

At this point, Tim KF4RTX read a letter of resignation that the Board has received from President Jack Ritter, WØUCE.

Lynn KO4QH speaking for the Education department is asking for help. She is seeking people to work directly with her on various educational programs. Then, speaking as a Crystal, she announced the RARS dinner, which is held at 6:30p on the fourth Tuesday. The new location is Fat Daddy's on Glenwood Ave.

Gary, KN4AQ took to the podium at this time for several announcements. Firstly, he described what has been happening with the mailing of the Exciter. Then, he announced the upcoming RARS class, scheduled to begin on July 10 at the Nortel Networks Raleigh Technical Education Center. Also, the RARS 10 meter net is experimenting with using 75 meters. The 10 meter net will meet on 3987 kHz after beginning on 10 meters, Wednesday nights at about 8:30p. And finally, he described some of the changes that have been going on at the State Emergency Operations Center (EOC) concerning ARES and our involvement with North Carolina Emergency Management.

Bill KG4CXY gave a brief PowerPoint presentation on his vision for our Public Service involvement. Bill is our new Public Service Director, replacing Matt, W2BYV.

Jeff AC4ZO announced the RARS Field Day operation, scheduled for the weekend of June 23, and then answered questions concerning the event from the membership.

With this completing the announcements, Jeff introduced the program for the evening at 8:25p. The program was a video presentation of Riley Hollingsworth from the RARSfest.

Door prizes went to KB4RZ, KO4TV, KF4RDP, KG4FIQ, and N4YRD.

The meeting adjourned at 9:33p.

Jeff Wittich AC4ZO, Secretary

Board Meeting Minutes

April, 2000

Minutes of the RARS May Board Meeting - May 16, 2000

The meeting was called to order by President Jack Ritter, WØUCE at 7:38p. Members present at that time were: KN4AQ, W4BRB, AB4OZ, KO4QH, KF4RDP, WD4RDT, W0UCE, N4YRD, N4YTO, and AC4ZO. The total attendance was 11.

On motion by N4YTO, seconded by N4YRD, the minutes of the April meeting were approved.

N4YTO gave the Treasurer's report. He said our membership stands at 288.

Committee Reports:

In the **FM Committee** report, W4BRB distributed documentation on the expenses concerned with the repeater relocation, and made several recommendations for future repeater projects. This report marks the completion of the repeater relocation initiative. Also, Bernard reported that the Bayleaf building has been insulated to reduce utility costs. KF4RDP moved that we accept the report and applaud Bernard's efforts. Motion was seconded by KO4QH, and passed. (applause)

KN4AQ reported on the **Education Department**. He said that he has communicated with the Nortel Networks Technical Education Center, and is scheduling a Summer class to begin on July 10.

Now wearing the hat of the **Exciter** Editor, Gary passed around the 12 page preliminary June issue of the newsletter. Advertisement rates for the Exciter were discussed, but no action was taken by the Board.

KF4RDP gave the **Webmasters** activity report. He said that we have been getting about a thousand hits a month from Japan.

Old Business:

AC4ZO gave an update on the progress of the **Articles of Incorporation** and Bylaws issue.

New Business:

AB4OZ brought to the Board a request from a member that we make a donation to the **Piedmont Coastal Repeater Network**. There was much discussion, and finally, KN4AQ was asked to contact PCRN officials and invite them to say a few words at the RARS June meeting.

N4YTO led a discussion on **budget** planning for next year. Budget philosophy was discussed. Ways to generate income were discussed. Line items were added, removed, and added again. Names were changed to protect the innocent, and finally, after appealing to the Ham god of green stuff, a budget very much like what David originally proposed was arrived at. A motion was made by KF4RDP and seconded by KN4AQ that we approve the budget as proposed. Then there was more discussion, and eventually the motion was carried.

Comments and Announcements:

N4YTO - Renewal notices will be sent in with the June Exciter.

WD4RDT - Announced his surprise that we reached a budget agreement in one meeting.

KN4AQ - Announced that Curt Phillips is back in town to stay.

AB4OZ - Is concerned about the condition of the RARS shed.

With the business complete, on motion by N4YRD, the meeting adjourned at 10:01p.

Respectfully submitted,

Jeff Wittich AC4ZO, Secretary

SWL/Scanner Net Returns to 146.64 Monday Nights at 9 PM

NPR Features Story On Shoatwave "Numbers" Stations

National Public Radio's series "Lost and Found Sound" featured the mysterious "Numbers" stations - shortwave stations that continuously broadcast short series of numbers. These stations have long been suspected to be broadcasting encrypted messages to spies. The NPR story doesn't shed much new light, but it's entertaining anyway. You can hear it using RealAudio at:

www.npr.org/programs/lnfsound/stories/000526.stories.html

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Snapshots

CCFA Run:

Joe WA2UZO *coordinated hams out at Glaxo for this run, and wields an HT. Actually, he was holding two of them, as he directed hams and the event staff. He stayed busy!*

Hamfest Calendar

July 8:	Salisbury
July 15:	**Cary**
July 29:	Waynesville
August 5:	Roanoke, VA
Sept. 2-3:	Shelby

courtesy of the
SERA Repeater Journal

Greg KG4AWG, *who trailed the run, is followed by a police escort. "The only time I've had flashing lights behind me, and I didn't have to pull over" Greg says.*

Eric KG4CXW *makes sure Amateur Radio gets credit for our communications assistance. Not pictured - the green-flashing light bar on top of his truck...*

On the Cover *(Inset Picture): David Sutton KD4BFH, Eric Haywood KG4CXW, Lowell Chrzan KF4WVV, Bill Cole KG4CXY, Joe Zobkiw WA2UZO, and Larry Holt KG4FIQ*